INFO ON PLANTS

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Falling of Leaves

Sometimes we assume that trees loose their leaves because of colder temperatures.
As leaf fall can take place in early summer when the temp is rising. This is the trees system of stopping transpiration by discarding its leaves.
The same applies to trees in winter when severe weather can prevail when the ground temp drops to under 10oC the roots become inactive to supply the upper tree of moisture or nutrients. Trees will before the fall of their leaves extract all the food from the leaves and store it in the branches to hedge against further breakdown of food supplied, the next stage is self amputation of the leaves. No wound is left and no loss of sap is lost.
Now one would ask why don't evergreen plants such as Rhodo, Conifers and many others, their leaves are stiff and leathery and are tough which impedes transpiration, thus enables the plants to conserve energy and moisture through difficult periods, they to withdraw food from the leaves and they generally become a darker hue during winter, so we assume all plants need a rest.
When trees are pruned all growth will cease immediately and the leaves left will harden and darken, this is caused by the removal of the growth hormone called Auxin at the tips of growth which is in constant communication to the root dept.
The complexities of plants and the knowledge we don't know would fill 20 encyclopaedias!
Over millions of year's early trees such as the conifer family didn't mutate or change a great deal as their system of reproduction relied on pollen being blown from tree to tree and they are much hardier than broadleaf family and could stand extreme heat and very low temperatures, this we know as Conifers were locked up in the ice ages when most were covered with ice a 1000 ft deep for up to 1000 years, then they carried on where they had left off, and even in the latter Ice ages the Maples and other Deciduous Trees were caught the same way by as with the Conifers they actually prepared for these events no different than our oldest trees on the planet such as the Dragon Tree of Orotova, 6000 years old or the Baobab at 5000 or the Brislecone Pines in the Sierras at 10,000 ft and also around 5000 years old.
Now when we look at these ancient trees they haven't changed practically at all, now 2 factors are taking place 350 million years ago. The climate is changing and insects have evolved in primitive form, 150 millions after conifers have evolved the first flowing plants have developed they realise the presence of insects and being opportunists began developing a dazzling variety of flowers to ensure the insects would distribute their pollen, especially if both the male and female flowers were on the same plant the odds suddenly are greater than wind borne pollen on conifers.
Now plants are very sensitive forms of life they are aware of their environment, also who their enemies are, and they know how to take advantage of any situation that arises.

Examples

Acacia's - Giraffes eat acacia leaves after 30 seconds these trees release a toxic fluid where the animal is chewing, the giraffe moves to next branch, and so on. This protects the tree from complete bareness and no food production for the tree. Bearing in mind the acacia was around a long time before the giraffe evolved but over 100,000 years he too evolved to be a much taller animal and he too could dine on these tasteless trees when others weren't dining to well around him. In the end happy ending, the trees have survived and the giraffe still has lunch.
As more and more animals evolved plants produced more and more devices and technics to beat the voracious ones such as spines, thorns, toxics - producing sword like leaves in the infancy stage then broad leaves to speed up photosynthesis (ex Lancewood).
Why Plants are far more complex than animals is quite clear, they are fixed to the ground, can't run away to some where danger doesn't exist, they have to deal with all manner of situations or die, and the ace up their branch is they can mutate to suit their situation, all evolution can mutate, some just takes longer depending on the urgency or the need to.
So the seed has been set. Distribution is now prime function and to this end the Plant has come up with the best engineered or presented way to distribute its off springs. For short life plants where seed production is quick, wind distribution, adhesives on seeds, barbed, and eaten by birds – which pass thru the digestive system in around 2 hours, which are then splattered on the ground in an inglorious heap of excrement, which will enrich the start of another generation. Win win for both parties. Fruit Trees have a much bolder plan. They develop the fruit slower with photosynthesis, colouring the infant fruit with chlorophyll (same as leaves), this has the tendency to mask the fruit to allow full development, and then the chlorophyll is withdrawn allowing the coloured pigments known as anthocyanins and carotene chromoplasts to show thru. Now advertising to birds and animals come to dinner and by the way take my seeds to the other side of the paddock.
Engineered seeds such as sycamore can be carried some considerable distance, when strong winds arrive the taller the tree the further the projected flight. Another approach is the misitoe distribution. This evolved mainly
Thru a bird called the missel thrush. The seeds are coated with a sticky substance, some of the seeds stick to birds beak, he in turn will go to another tree and rub his beak on a bough to rid himself of same, this will adhere to the branch, germinate and send roots down into the heart of the branch and becomes another member of the parasite family.
Usually the higher the tree the smaller the fruit (small birds), lower trees larger fruit – to suit the mammel family etc. Distribution is only, off course one factor; germination is also another obstacle, to overcome. Some seed only germinate after fire destroys parent trees, which coats the soil with potash, exposes the seeds to light which triggers germination.
Some seeds need chilling units to break dormancy. Some rising temp and moisture. Coconut shells travel vast distances with tide and wind, and when they grow above high tide the palm hangs out over the beach to ensure coconut rolls down the beach to start a new life elsewhere, rather than competing with parent.